

EAR TO THE

ISSUE 20 | Spring 2016

# GROUND

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## DIG SAFE SYMPOSIUM *Awards*



**INSIDE:** LOOK UP BEFORE YOU DIG DOWN | CROSS BORE SEWER SAFETY





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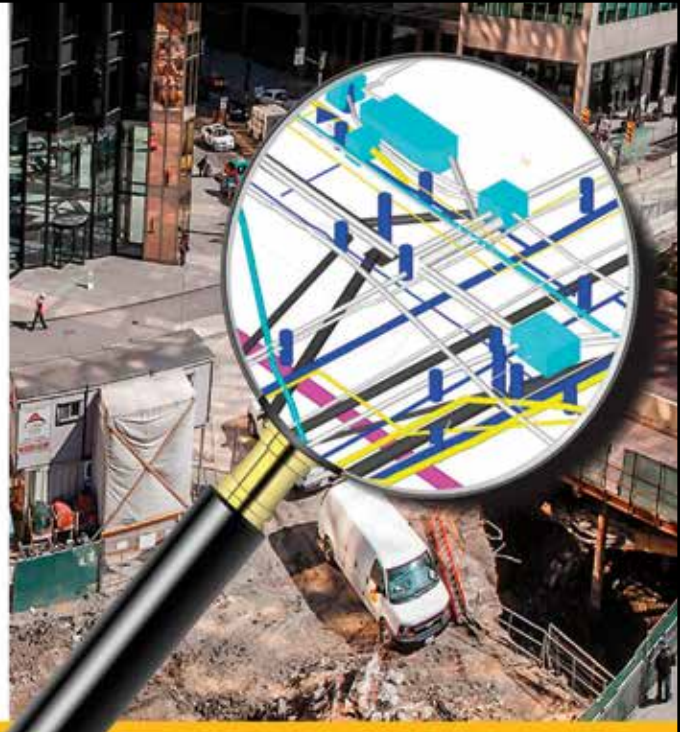
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# EAR TO THE GROUND

ISSUE 20 | SPRING 2016

Working Together to Build a Safer Ontario

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The Ontario Regional Common Ground Alliance (ORCGA) is an organization promoting efficient and effective damage prevention for Ontario's vital underground infrastructure. Through a unified approach and stakeholder consensus, ORCGA fulfills its motto of "Working Together to Build a Safer Ontario."

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# Contents

## FEATURES

### 8 2016 DIG SAFE SYMPOSIUM AWARDS

### 13 CROSS BORE SEWER SAFETY

BY MICHAEL ABATE, EIT, SENIOR ENGINEERING PROJECT LEADER,  
ENBRIDGE GAS DISTRIBUTION  
CHRIS VAN DAELE, DAMAGE PREVENTION FIELD MANAGER,  
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TYLER BOYES, SENIOR COORDINATOR UTILITY CROSS BORE PROGRAM,  
UNION GAS LIMITED

### 17 LOOK UP BEFORE YOU DIG DOWN

BY ELECTRICAL SAFETY AUTHORITY STAFF

### 19 HYDRO ONE IMPLEMENTS ALTERNATE RESOURCE STRATEGY FOR UNDERGROUND LOCATES

BY HYDRO ONE STAFF

### 23 WORKING SAFELY ON OR AROUND HEAVY EQUIPMENT

BY INFRASTRUCTURE HEALTH & SAFETY ASSOCIATION STAFF

## COLUMNS

### 7 PRESIDENT'S MESSAGE

## DEPARTMENTS

### 26 INDEX OF ADVERTISERS

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# The ORCGA: Looking Back, Looking Forward

**LOOKING BACK OVER** the past few months, there have been several changes at the ORCGA.

The ORCGA office has now moved to 545 North Rivermede Road, Unit 102 in Vaughan, Ontario. We are now closer to more of our members and sponsors. The office is conveniently located off Highway 407, and we invite you to stop by anytime.

As a result of the move, we recently brought on a new Accounting Administrative Assistant, Kimberly Sheppard, who has brought a fresh new outlook and several years' experience.

Speaking of more change, after many years with the ORCGA, Lori O'Doherty has accepted a position at the Ontario Dental Association. Her knowledge and experience will be missed, but we wish her all the best in her new career!

With this gap, we expect to be hiring a replacement in the near future. We continue to plan for exciting events, however, your patience and enthusiastic assistance will be appreciated as we enter a new era at the ORCGA together!

We recently had our 13th Annual Damage Prevention Symposium in Blue Mountain, which was a success. There were over 260 symposium participants, 65 of whom were first time attendees. In addition, 28 vendors, the highest amount ever, goods and services were showcased.

The Symposium will return to familiar grounds, as we will reconvene in Niagara Falls on January 31, 2017.

Recapping some of the ORCGA highlights from 2015:

- 55 new members were added; the membership now totals over 500;
- Sponsorship growth was increased;
- There was Geographic Council growth, in terms of attendance and presentations;
- 2015 saw a higher amount of students taking the Damage Prevention Technician Training course; and,
- Dig Safe was made the national damage prevention brand across Canada.

We are working towards continued growth in ORCGA membership and retention, improved membership value services, via our Member Value Program, while still recognizing the good work done by our existing committees and by having industry events such as Dig Safe, the ORCGA Golf Tournament, and our Locate Rodeo targeted for Fall 2016.

I am very happy to announce ORCGA's new Gold Sponsor Badger Daylighting, our new Silver Sponsor Ontario Excavac and our new Bronze Sponsor Subsite Electronics.

On another note, I frequently reflect on the ORCGA vision, which states that we are "leading Ontario to be the safest jurisdiction with the most reliable infrastructure in North America."

When we compare Ontario's DIRT statistics to the rest of Canada, our damage-to-locates ratio and notifications is very good, however, not all of our members are reporting damages.

Industry "rumblings" are suggesting that 2015 damage numbers could be trending higher...

All of us need to ask ourselves why that is.

Is it because a majority of damages continue to be as a result of insufficient excavation practices? Or is it because no notification is being made in the first place?

One thing we can be confident in is that more ORCGA members and sponsors who follow the damage prevention Best Practices will result in even less damages and will enhance public safety and infrastructure reliability.

If you have any suggestions, questions or concerns, please let me know.

I look forward to serving your damage prevention needs.

Sincerely,  
Ian Munro  
ORCGA President & CEO  
ian@orcga.com  
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# 2016 Dig Safe Symposium Awards

## LESLIE ELLIOTT – 2016 Hall of Fame Inductee



Leslie Elliott's 29-year telecommunications career began as a district associate in engineering and design at Bell in Toronto Ontario. Within Leslie's first year at Bell, she moved to the Field Operations Team in Sudbury before moving to Barrie, Ontario.

Leslie's career in Field Operations has involved travelling throughout Ontario, the Western Provinces and the United States. From a muddy cable pit to an executive conference room, Leslie's comfort level is seamless. Her career evolved over the years to include managing internal and external workforces, controlling multi-million dollar portfolios, delivery of customer services related to control centres 611, cable lookup and dispatch process, projects (such as Bell Field Operations ISO certification, establishing a western contractor management and damage prevention team, and the 2010 Vancouver Olympics Long Haul Network Coverage). Leslie also managed small-medium business and outright sales contract management, locate and excavating damage prevention initiatives, outside plant maintenance and emergency restoration, implementation of strategic plans, financial budget planning and the field deliverables related to contract awarding.

While managing a diverse team within Bell, Leslie made significant contributions to advancing the Locate Alliance Consortium, representing Bell and the Telecommunication industry on the Steering and Provincial Committee, Ontario Ontario One Call as a Board of Director and Operational Committee member, ORCGA as an Executive Board of Director, Treasurer and Best Practice and Geographical Committees. She partnered with Planview, NMT, Enbridge and Union Gas on the development of a multiviewer locate tool that provides Locate Service Providers with visibility of all infrastructure mapping, as well as a DPRA tool with critical network zone identifications to notify Bell of opportunities to prevent damage to their network. The marrying of Bell internal billing SKU libraries related to Outside Plant Maintenance and Emergency Restoration with Engineering Network Provisioning work along with Contractor input such as KG Reid developed one master billing SKU to implement across Canada. The value of this initiative aligning all on the same page has truly

eliminated misunderstanding, rework and is driving efficiencies for all.

Leslie attributes her career success to having the great opportunity to learn from experts within the industry. Through listening, encouraging, optimizing and remaining open to new ideas as well as appreciating the expertise and support of those around her, Leslie was driven to accomplish what she had on her never-ending "to do" list. As Leslie learned and received new information, she ensured that she shared that knowledge with all those around her to promote continuous growth.

Leslie is known in the industry for her reliability, strength and commitment, which others know they may call and depend upon. We are thrilled to induct Leslie Elliott into the Hall of Fame.



## HANS PETERS – 2016 Hall of Fame Inductee

Hans Peters traveled extensively as a child, youth and young man and along the way built a number of companies in Canada and the Caribbean before forming ComPeters Inc. in Quito, Ecuador in 1984.

ComPeters was one of the first computer-related businesses in that country, doing hardware, network and software work for the service, missions and financial industries 32 years ago. Now married, Hans moved to Canada with his family and became involved with intelligent mapping and data systems. Hans ran trials for truck-mounted faxing of locate forms and then created the first ever intelligent building cable management system based on mapping software. Hans then returned to building software under the ComPeters banner. Hans recreated ComPeters in Canada in 1994 to become one of the first and best known locate software providers in Ontario under the UtiLocate name. After a meeting on a golf course where a deal was struck, Hans grew the software in the field with locators to build something that works for and with the locators. He took the capability of an LSP from 16 to 1,800 and more tickets a day today, while at the same time giving the industry the opportunity to move from paper to totally paperless and while still be able to do hand drawings. Hans has passed the UtiLocate torch on now, but is still involved



in the locate industry. He has currently taken on the mantle of Pastor for a Toronto inner city church in a low-income, marginalized community.

Hans has been part of the ORCGA since 2004. He has been a part of the Best Practice committee for many years. Hans has been involved with the creation and passing of a number of best practices, such as the common locate sheet and, most recently, electronic locates Best Practice. Hans was part of the original group that created the first DPT program. He chaired the Waterloo Region Geographical Council from 2008 to 2010 and has been part of the Events Committee since its inception. Hans never misses a golf game and has been the master scorekeeper for the ORCGA's locate rodeo from the beginning. Being the Master Scorekeeper is invaluable. Without his efforts and that of the team he puts together the Rodeo could not run. Hans regularly volunteers at all ORCGA events, at the registration table, in the seminars, even as a presenter. Hans gives graciously his time and continues to be part of the ORCGA. Hans is on numerous committees and sub-committees as well as acting as the occasional consultant and sounding board.

We are thrilled to induct Hans Peters into the Hall of Fame.



### **JEREMY COOK – Member of the Year**

Jeremy is a civil engineer with over 40 years' experience that includes municipal and land development projects, sewer and water main projects, servicing of industrial and residential subdivisions, major road improvements, electrical and telecommunication duct banks, as well

as feasibility studies, public hearings and regulatory approvals.

Jeremy is General Manager of Terra Discovery Ltd., a locate service provider that specializes in SUE work and private locates, where he has overall responsibility for the company's operations including sales, field work and delivery of services.

He is a member of Professional Engineers Ontario (PEO), a Fellow of Engineers Canada, and a Designated Master Electrician. He served as PEO's representative on the Technical Committee that produced CSA standard S250-11 Mapping of Underground Utility Infrastructure.

Jeremy has been a regular participant at the ORCGA Best Practices Committee for which he has been a Co-Chair since 2012. He has championed successful efforts to develop the "common locate sheet" format (BP 3-14) and to define the requirements for a valid locate (BP 3-21). He has also made a number of presentations at ORCGA Symposiums, Geographic Councils and the 2014 Dig Safe Expo.

In 2015, Jeremy played a major role in reorganizing ORCGA's approach following the harmonization of best practices across Canada and the publication of CCGA Best Practices Version 1.0. This involved assisting staff in development of a new tracking system and documentation templates for feedback to national partners. He also attended numerous extra meetings and

teleconferences related to harmonization issues as well as being called upon to advise National partners on new proposal submissions.

Jeremy has volunteered countless hours to the Rodeo, Dig Safe Events, participates in the Geographic Councils and is always there to assist when the ORCGA reaches out.

It is our pleasure to award Jeremy Cook Member of the Year.



### **JEFF HITCHCOCK – Member of the Year**

Jeff Hitchcock has been in the Damage Prevention Industry for 10 years, operating from various perspectives since beginning his career as a Call Taker for Ontario One Call. After a year in the trenches, Jeff became their first full-time trainer in 2007 and a Team Leader in

2009. Jeff took leave of Ontario One Call to move to Ottawa where he became a Locate Coordinator for Aecon Utilities Eastern Region in 2010. He returned to Ontario One Call in 2011 to retake his mantle as co-chair of the Training Department as well as recruiting new members to Ontario One Call.

In that role, he was responsible for the orderly onboarding of all applicable owners of infrastructure into the One Call system for June 19, 2014. Recently, he helped Ontario One Call's operations insource its Contact Centre, located in Guelph, Ontario.

Jeff is currently the Training and Education Program Manager at Ontario One Call. In this role, he is responsible for all marketing, excavator training, ALA training, utility training, 360 Feedback Training and Member Outreach for Ontario One Call.

In 2007, Jeff became involved with the ORCGA. He attended his first Symposium where he worked the One Call booth, answering questions for various stakeholders. He immediately signed up for two Geographic Councils and joined two of the Provincial Committees, Events and Education as a committee member.

Jeff is now a regular staple at the Ottawa, Kingston, GTA East, Barrie and Toronto Geographic Councils, often presenting and assisting ORCGA members in their daily quest for damage prevention. In early 2014, the two Provincial Committees were combined and Jeff has been the Co-Chair of the Events and Education Committee since February 2014. Jeff sits on multiple task teams developing training presentations, such as "Alternate Locate Agreements," "How to read a locate," "Getting Around Under Ground (GAUG)," as well as revising the Dig Safe brochure and the membership value proposition.

Jeff has volunteered at the Rodeo for eight years and taken on a permanent role at the Locate from Hell.

He volunteers at numerous dig safe events and donate countless hours to the ORCGA.

It is our pleasure to award Jeff Hitchcock Member of the Year. ■



**11<sup>th</sup> Annual ORCGA June Golf Tournament  
Wednesday June 15, 2016**

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**TIMES: Registration** 10:00 a.m.      **Lunch** 11:00 a.m.  
**Shotgun Start** 12:00 p.m.      **Dinner** 6:00 p.m.

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<b>2006</b>	V.J. McMullin Pipeline Limited	Minto Developments Inc.	Safeline Utility	Lomco Ltd.	Paddock Developments Ltd.	Fer-Pal Construction Ltd.	Trinity Cable	
<b>2007</b>	T.W. Johnstone Company Limited	Minto Developments Inc.	Safeline Utility	Roma Fence	Gazzola Paving Limited	Ontario Excavac	Intek Communications	
<b>2008</b>	Link-Line Construction Ltd.	Arista Homes	Wiens Underground Electric Ltd.	Lomco Ltd.	Sunrise Contracting Inc.	L M Enterprises	Wirecomm North Inc.	Powerline Plus
<b>2009</b>	T.W. Johnstone Company Limited	Minto Developments Inc.	Powerline Plus	Sunshine Tree Contactors	Maple Crete Inc.	Fer-Pal Construction Ltd.	Expercom	Con-Elco Ltd.
<b>2010</b>	T.W. Johnstone Company Limited	Minto Developments Inc.	Wiens Underground Electric Ltd.	Lomco Landscape Contractors	Maple Crete Inc.	Utility Force Inc.	Dyna-Co Construction	Thomas Cavanaugh Construction Limited.
<b>2011</b>	T.W. Johnstone Company Limited	R C C Group	El-Con Construction	WM Weller Tree Service	A & F DiCarlo Construction	Fer-Pal Construction Ltd.	LDA Construction(1994) Inc.	Dufferin Construction
<b>2012</b>	T.W. Johnstone Company Limited	RCC Waterproofing	Kaladar Northern Construction	Lomco Ltd.	Rankin Construction	L M Enterprises	Telcon Datvox Inc.	Avertex Utility Solutions
<b>2013</b>	Link-Line Group of Companies	Jacques Bedard Excavation Ltd.	Safeline Utility Services Inc.	Lomco Limited	A & F DiCarlo Construction Inc.	Utility Force Inc.	Dyna-Co Construction	B-Line Trenching Inc.
<b>2014</b>	T.W. Johnstone Company Limited	Thomas Cavanaugh Construction Limited.	El-Con Construction	Loki Reforestation Limited	Brennan Paving	Wm. Groves	Dyna-Co Construction	Bradley Kelly Construction
<b>2015</b>	Michels Canada Co.	Cotton Inc.	Langley Utilities Contracting Ltd.	The Professional Post Hole Guy	Powell Contracting Ltd.	Clean Water Works Inc.	Brad Cole Underground Construction Limited	Colautti Construction Ltd.

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TYLER BOYES, SENIOR COORDINATOR UTILITY CROSS BORE PROGRAM, UNION GAS LIMITED

# Cross Bore Sewer Safety

Every day we go about our daily routines without giving thought to the massive network of utility assets that play such a vital role in our quality of life. These assets, which go largely unnoticed, reliably deliver electricity to run appliances, natural gas for heating, telecommunications services to connect us with family, work and friends, and water for drinking, cooking and cleaning. Others remove waste water and refuse to protect our health.

Some of these utility networks are above-ground, mounted to utility poles, but the vast majority are hidden under the roads, sidewalks and surfaces we traverse every day.

Over the past century, utility networks have grown in size, complexity and overall density to meet our ever-changing needs, and construction and installation practices have followed suit. In the first half of the 20th century, the only way to install underground utility assets was through open excavation, which unfortunately often involved traffic disruptions and damage to property, roadways and tree roots. With the introduction of trenchless construction technologies, utility companies could have underground assets quickly and reliably installed in a non-invasive manner that limited impacts to the surrounding area. Since that time, trenchless technology has become the installation method of choice in populated, urban areas. Today, the most commonly used trenchless technologies include non-directional boring (moles, torpedoes), horizontal directional drilling and plowing.

Safe and successful trenchless installation, however, is impossible without adherence to excavation best practices. Proper planning, accurately determining the location of existing underground assets, and well-written and executed procedures are critical. Without them, trenchless installation methods can result in one utility intersecting another, known as a utility cross bore. The direct



contact compromises the integrity of one or both utilities.

Cross bores can interrupt critical services and can be very costly to repair. Most importantly, if they involve electric, natural gas or oil lines, they can pose serious safety risks. If a natural gas, oil, electric, water or sewer line is hit during the trenchless installation of a second utility, the damage will likely become apparent quickly, but in some instances cross bores can go unnoticed for years.

This can be the case when a sewer lateral is intersected. Sewer laterals connecting to sewer mains are usually unpressurized with a gravity-driven flow. A cross bore through a sewer lateral can, although not always, contribute to a blocked sewer and it can take years for the disruption to reach the point that it would require clearing. If cleaning is necessary, an operator using rotating mechanical equipment (i.e., an auger) or high pressure water jetting equipment could unintentionally




damage the intersecting utility. If an electric line is involved, the equipment operator risks electrocution. A damaged oil line could lead to environmental contamination and damage to a natural gas line can result in escaping gas migrating up the sewer lateral and accumulating in the house, posing an explosion risk.

To address these serious public safety concerns, some utility companies have implemented formal policies and programs to locate and remediate utility cross bores before an incident occurs. These programs can have both reactive and proactive components.

Reactive programs typically use a call-before-you-clear concept. Before attempting to clear a sewer lateral blockage outside the walls of a building, those undertaking the work are advised to call the utility owners of potentially conflicting assets. In some areas, these calls are handled through the local "One Call" locate center. An inspection is initiated to determine if it is safe to clear the sewer blockage and if a cross bore is identified; it is remediated prior to clearing the sewer.



Proactive programs involve actively searching for cross bores within a given area and remediating them. These areas may be defined by risk analysis or may be conducted shortly after trenchless installations have been completed.


Reactive and proactive programs are completed in a similar manner, which involves a combination of multiple inspection methods including:





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If you are a stakeholder in the excavation community with a strong interest in personal, employee and public safety, you can help protect public safety and prevent a cross bore incident, as follows:

- Make a commitment to using the “call before you clear” concept, and tell others to do the same. In Ontario you can call Ontario One Call at 1-800-400-2255 to report a blocked sewer and request an Emergency Sewer Safety Inspection. Most natural

gas distributors and some electrical distributors use Ontario One Call to provide this service.

- Follow trenchless installation best practices. In particular, never assume where underground facilities are located. Ensure that all underground infrastructure is accurately located before any excavation activity, open trench or trenchless, occurs.
- Ensure that all underground facilities are readily locatable and records of their location are maintained. ■

- A review of utility installation records to rule out a cross bore based on the work completed date or method of installation.
- A video inspection of the associated sewer lateral(s).
- Sonde and electromagnetic locating of the sewer and surrounding utility assets to compare asset positions, including depths.
- Excavation of the site with cross bore remediation as necessary.

These methods, in addition to newly emerging locate technologies such as ground penetrating radar, are being used to identify cross bores in more efficient and less obtrusive ways. Utility companies and their installation contractors have also implemented best practices intended to eliminate the possibility of new cross bores being created. These practices will continue to improve and currently include:

- Obtaining utility locates through one call services;
- Obtaining private locates where utility location information is unavailable;
- Spotting all utility crossings when using trenchless construction technology;
- Video inspection of borehole paths as part of the installation process; and
- Inspections of sewer laterals following trenchless utility installations.

In some cases it may be necessary to choose a different utility installation path or even decide to use open trench methods.

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## Natural Gas Sewer Safety Inspections

Natural gas pipelines installed using trenchless practices may have inadvertently penetrated sewer service lines.

Using motorized or water-jetting equipment to clear the sewer line can damage a natural gas line resulting in a gas leak, fire or explosion.

Before clearing a blocked sewer beyond the outside walls of a building, take the necessary precautions to protect yourself and others.



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BY ELECTRICAL SAFETY AUTHORITY STAFF

# Look Up Before You Dig Down

## *Powerline safety is everyone's responsibility*

**H**igh voltage powerlines are unforgiving and lethal. Incidents happen suddenly and unexpectedly, and the results are tragic.

We all have a role to play in ensuring safety on the job and it's important to remember that touching or even coming too close to a powerline with heavy equipment can be deadly. Powerline contacts are the leading cause of electrical-related fatalities in Ontario contacts through near-misses.

Electricity can arc from a powerline to any object (including people) if they are too close. This is especially true for construction workers who face the risk of contact with overhead and underground lines on the job each and every day. There were 16 occupational powerline fatalities from 2005–2014; of those fatalities, six were driving or operating an auger, crane or dump truck, six were labourers and/or signallers, and one was a lineperson. It is easy to forget about powerlines when you are focused on the task at hand.

Occupational powerline fatalities outnumber non-occupational fatalities by 2.4:1. The leading cause of occupational fatalities is failure to do a site hazard assessment.

### **REMEMBER THESE IMPORTANT TIPS TO STAY SAFE WHILE WORKING NEAR POWERLINES:**

1. Perform a site survey prior to beginning any construction involving heavy equipment to identify electrical hazards.
2. Always have a competent, dedicated signaller on the job.
3. Be aware of the limits of approach and how close is too close when it comes to powerlines.
4. Call before you dig.

Workplace safety goes far beyond protective clothing and safety boots. Always be aware of your surroundings and take extra precautions when using ladders, cranes, dump trucks, backhoes, cherry pickers and other "high reach" vehicles. For more powerline safety tips, or to learn about ESA's Powerline Safety campaign, visit [www.esasafe.com/powerlinesafety](http://www.esasafe.com/powerlinesafety). ■



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BY HYDRO ONE STAFF

# Hydro One Implements Alternate Resource Strategy for Underground Locates

While last year saw many changes for Hydro One, the company's focus on public safety and operational efficiencies was not sidelined. A groundbreaking new initiative, the Alternate Resource Strategy for locates of underground cable on the distribution system, was successfully launched at the end of 2015.

The Alternate Resource Strategy for locates is an initiative that has enabled Hydro One to source the provision of underground locating services from external vendors. By sourcing externally, Hydro One expects to improve the quality and timeliness of locates provided to homeowners and excavators and realize cost savings through multi-utility discounts.

A number of factors contributed to the success of this initiative including the backing from senior management that filtered down to all levels in the company.

Early in the project, it became apparent that expertise was required from many disciplines across Hydro One. Collectively, the assembled team provided in-depth knowledge on field



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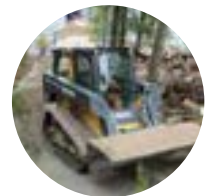
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operations, process, work management, legal, technical services, supply chain/procurement and information systems. This knowledge included hands-on expertise about Hydro One's locate requirements and an understanding of processes and their touch points both within the organization and externally, such as Ontario One Call and TelDig. Since technology was to play a large role in this initiative, Hydro One's Geographic Information System (GIS) team worked closely with information systems to enable MultiViewer, an application that allows locators to view GIS data from multiple sources. Throughout the implementation, Hydro One's legal and supply chain teams ensured compliance with Hydro One's procurement policies and protecting Hydro One's interests.

Collaboration between stakeholders carried on throughout the entire project. The Locate Alliance Consortium (LAC) members provided Hydro One tremendous support throughout the process, sharing information and lessons learned from their own experiences. The LAC is composed of infrastructure owners committed to providing high quality locates through a consortium approach. Through LAC, Hydro One reached out to locate service providers (LSPs) to establish contracts for the areas they serve. Working closely with the LSPs to communicate requirements and establish timing, as well as to provide training and conduct site visits, helped to build strong relationships.

A significant amount of co-ordination was required due to Hydro One's large service territory, which operates in 10 of 11 LAC regions serviced by four LSPs. A phased implementation began with two pilots in the fall followed by full scale roll-outs in the remainder of the province in December 2015 and January 2016. The pilot was conducted during the busy dig season to enable Hydro One and the LSPs to adequately test and fine-tune processes and resolve issues. The full scale roll-outs

were timed to coincide with non-peak, lower volume periods to enable a smooth transition for the LSPs.

Although much work remains to improve the process of underground locates, it's evident that alternate resourcing for locates has been a successful initiative for Hydro One. With the right resources, a collaborative approach and support from all levels in the company, alternate resourcing can be achieved by any utility looking to benefit from such an arrangement. ■



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BY INFRASTRUCTURE HEALTH &amp; SAFETY ASSOCIATION STAFF

# Working Safely On or Around Heavy Equipment\*

**W**orking on or around heavy equipment is high-risk work. If an incident occurs, the result is often a life-altering injury such as a broken bone, head injury, or, in many cases, loss of life. Incidents involving heavy equipment deeply affect not only the person who is injured but also the person operating the equipment or any co-workers nearby.

To control the risks, follow the safe work practices below.

## WORKING AROUND HEAVY EQUIPMENT

- Preplan the job. Set up drive-through operations to reduce the need for equipment to back up.
- Participate in daily hazard assessments around the site. Place warning signs and install barriers where needed to prevent hazards.
- Understand the different soil types and learn how to recognize them.
- Never use a cell phone or other mobile device while operating or working around heavy equipment.

## SAFE OPERATION OF HEAVY EQUIPMENT

Before operating the equipment, perform a circle check to ensure that

everything is in proper working order. Remember to document the results. Here are some things to look for:

- Windows are clean and not cracked or broken.
- Mirrors are clean, not cracked or broken, and are adjusted properly.
- Back up alarms and cameras are working properly.
- Lights are working properly (night work is becoming more common).
- Equipment guarding is in place.
- Fire extinguishers are accessible and are fully charged.
- Always work in accordance with the manufacturer's operating manual.
- As per the manufacturer's instructions, only a competent worker can set up and dismantle the equipment.
- Where applicable, ensure the equipment complies with O. Reg. 856: Roll-over Protective Structures.
- Where applicable, ensure the equipment has a cab/screen to protect the operator.
- No worker is permitted to operate heavy equipment unless they are considered "competent". Depending on the type of equipment involved, this could mean having the proper training or holding a certificate of qualification. (Note: In cases where certification is not required, an MOL inspector may use other means to determine competency, such as the employer's record of training or direct observation of how the operator is using the equipment.)



Use IHSA's *Circle Your Vehicle* sticker (S029) or window decal (S044) as a reminder

- Ensure there is proper access and egress to the equipment. Steps and/or ladders should be clean, well maintained, and skid-resistant. Maintain 3-point contact when getting on or off the equipment.
- If the equipment comes with a restraining device (i.e., seatbelt), the operator must wear it.
- If the operator or another worker has access to mechanically operated parts of a machine, make sure there is protective guarding or fencing around it.
- The operator must never stay in the vehicle or equipment while it is being loaded or unloaded.

\* A publication of the Civil Engineering Sector Labour-Management Health and Safety Committee in partnership with the Infrastructure Health & Safety Association.



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- The operator must always be at the controls when equipment parts or loads are being lifted.
- The operator must ensure that no part of the equipment or its load passes over another worker unless the other worker is directly involved in receiving the load or engaged in sinking a shaft. It's good practice to use barricades and signage to prevent workers from entering hoisting areas.
- Use a signaller if the operator's view of the load or the intended path of travel is obstructed.
- Never get closer than the minimum distance to a trench or excavation walls. Determine this distance ahead of time.

**Table 1:**  
**Minimum Distances to**  
**Overhead Powerlines**

Voltage Rating of Powerline	Minimum Distance
750 to 150,000 volts	3 metres (10 ft)
150,000 to 250,000 volts	4.5 metres (15 ft)
More than 250,000 volts	6 metres (20 ft)

Source: O. Reg. 213/91, s. 188

- Never get closer than the minimum distance to overhead powerlines. Have a plan in place and determine the limits of approach ahead of time (Table 1). Use a signaller if it's possible that the load or the equipment could encroach upon the limits.
- Before excavating, ensure all locates and markings are complete and are available to the operator in the equipment cab.
- Always use safe rigging practices and safe material handling practices.
- Use fall protection when required. This may be needed when operating, maintaining, or inspecting the equipment—and in some instances, when rigging.
- Never smoke in equipment that is considered an enclosed workplace.
- If the equipment is being towed, use two means of attachment. If one fails, the other must be able to hold the load.

### INSPECTION AND MAINTENANCE OF HEAVY EQUIPMENT


- Perform inspection and maintenance procedures as per the manufacturer's instructions.
- Ensure equipment guards are in place.
- When required, use blocking when carrying out repairs.

- Ensure lockout and tagging procedures are in place and are followed.
- Use cages or safety chains when changing tires or when exposed to a potential explosion hazard.

### STORAGE OF HEAVY EQUIPMENT


- Always store or park equipment in a safe location on the project.
- Never store equipment near sources of energy or structurally unstable ground. In some instances, grounding may be required.
- Ensure all equipment attachments are on the ground (buckets, blades, etc.).
- Take extra precautions on sloped grounds or near an excavation to make sure that unattended vehicles or equipment will not be able to move.
- Lock cab doors and windows when unattended to prevent access to the operator's cab. If the equipment does not have a cab, lock the operation console to prevent unwanted use.
- Always turn the master switch off—this disconnects the power to the ignition.

For more information including safety talks, products, and training on this subject, visit the Heavy Equipment topic page on the IHSA website: [www.ihsa.ca/topics\\_hazards/heavy\\_equipment.aspx](http://www.ihsa.ca/topics_hazards/heavy_equipment.aspx). ■



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# INDEX OF ADVERTISERS

<b>A. Miron Topsoil Ltd.</b> .....24	<b>Hood Excavac Services Inc.</b> .....25	<b>Radiodetection (Canada) Ltd.</b> .....12
<b>ACI Survey Consultants Inc.</b> .....25	<a href="http://www.hoodexcavac.ca">www.hoodexcavac.ca</a>	<a href="http://www.radiodetection.com">www.radiodetection.com</a>
<a href="http://www.landsurveyor.ca">www.landsurveyor.ca</a>	<b>Hydro One Networks</b> .....Inside Back Cover	<b>Roma Fence Limited</b> .....14
<b>Avertex Utility Solutions Inc.</b> .....22	<a href="http://www.hydroonenetworks.com">www.hydroonenetworks.com</a>	<a href="http://www.romafence.com">www.romafence.com</a>
<a href="http://www.avertex.ca">www.avertex.ca</a>	<b>Imperial Oil</b> .....24	<b>T2 Utility Engineers</b> .....3
<b>Beacon Utility Contractors Ltd.</b> .....20	<a href="http://www.imperialoil.ca">www.imperialoil.ca</a>	<a href="http://www.t2ue.com">www.t2ue.com</a>
<a href="http://beaconutility.com">beaconutility.com</a>	<b>Jacques Bédard Excavation Ltd.</b> .....26	<b>Teldig Systems Inc.</b> .....Outside Back Cover
<b>Bob Robinson &amp; Son Construction</b> .....6	<a href="http://www.bedardexcavation.ca/en">www.bedardexcavation.ca/en</a>	<a href="http://www.teldig.com">www.teldig.com</a>
<a href="http://www.bobrobinsonconstruction.com">www.bobrobinsonconstruction.com</a>	<b>Joe Johnson Equipment Inc.</b> .....3	<b>Telecon Design</b> .....16
<b>Cable Master Inc.</b> .....26	<a href="http://www.jjei.com">www.jjei.com</a>	<a href="http://www.telecon.ca/Home-en-1">www.telecon.ca/Home-en-1</a>
<a href="http://www.cablemasterinc.com">www.cablemasterinc.com</a>	<b>Kawartha Utility Services</b> .....20	<b>Trenchless Utility Equipment</b> .....15
<b>Canadian Cutting &amp; Coring</b> .....20	<a href="http://www.kawarthautilityservices.ca">www.kawarthautilityservices.ca</a>	<a href="http://www.trenchlessutility.com">www.trenchlessutility.com</a>
<a href="http://www.cancut.ca">www.cancut.ca</a>	<b>Metric Contracting Services Corporation</b> .....26	<b>Utility Contractors Association</b> .....22
<b>Cubex Ltd.</b> .....Inside Front Cover	<a href="http://www.metricgroup.ca">www.metricgroup.ca</a>	<a href="http://www.uca.on.ca">www.uca.on.ca</a>
<a href="http://www.cubexltd.com">www.cubexltd.com</a>	<b>Nova Chemicals</b> .....20	<b>Vivax Canada</b> .....6
<b>Danatec Education Services</b> .....22	<a href="http://www.novachemicals.com">www.novachemicals.com</a>	<a href="http://www.vivax-metrotech.com">www.vivax-metrotech.com</a>
<a href="http://www.Danatec.com">www.Danatec.com</a>	<b>Olameter Corporation</b> .....Inside Back Cover	<b>Weber Contracting #7 Ltd.</b> .....12
<b>Down Under Pipe &amp; Cable Locating</b> .....21	<a href="http://www.olameter.com">www.olameter.com</a>	<a href="http://www.webercontractingltd.com">www.webercontractingltd.com</a>
<a href="http://www.dupc.ca">www.dupc.ca</a>	<b>Ontario Excavac</b> .....24	<b>Weinmann Electric Ltd.</b> .....18
<b>Drain-All Ltd.</b> .....4	<a href="http://www.ontarioexcavac.com">www.ontarioexcavac.com</a>	<a href="http://www.weinmannlimited.com">www.weinmannlimited.com</a>
<a href="http://www.drainall.com">www.drainall.com</a>	<b>Ontario General Contractors Association</b> .....24	<b>Wiens Underground Electric</b> .....24
<b>Enbridge Gas Distribution</b> .....16	<a href="http://www.ogca.ca">www.ogca.ca</a>	<a href="http://www.wiensusgelectric.com">www.wiensusgelectric.com</a>
<a href="http://www.enbridgegas.com/sewersafety">www.enbridgegas.com/sewersafety</a>	<b>PGC Services</b> .....4	
<b>Fer-Pal Construction</b> .....24	<a href="http://www.pgcservices.ca">www.pgcservices.ca</a>	
<a href="http://www.ferpalinfrastructure.com">www.ferpalinfrastructure.com</a>	<b>Planview Utility Services Ltd.</b> .....21	
<b>G-Tel Engineering</b> .....26	<a href="http://www.planview.ca">www.planview.ca</a>	
<a href="http://www.gtcl.ca">www.gtcl.ca</a>	<b>Pro-Tech Communications</b> .....26	
<b>Halltech Environmental Inc.</b> .....22	<a href="http://www.pro-techcommunications.com">www.pro-techcommunications.com</a>	
<a href="http://www.htex.com">www.htex.com</a>	<b>Promark Telecom</b> .....18	
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